THAT WHICH IS CLAIMED IS:

1. An ignition system for a vehicle comprising:

an ignition coil having primary and secondary windings for generating high voltage signals to spark plugs;

an electronic control assembly (ECA) that generates a spark output (SPOUT) signal;

a distributor having a Hall Effect stator assembly mounted therein that generates a profile ignition pickup (PIP) signal indicative of crankshaft position and engine RPM to said electronic control assembly (ECA); and

an ignition module for receiving the spark output (SPOUT) signal from the electronic control assembly (ECA), said ignition module including a microprocessor for generating a control signal to an ignition coil and switching ON and OFF the primary current therein and a temperature sensing circuit operative with the microprocessor for reducing the duty cycle as applied to the control signal from the ignition module to the ignition coil and reducing the heat generated when a temperature threshold for the ignition module has been exceeded.

2. An ignition system according to claim **1** and further comprising an armature and shaft assembly mounted within the distributor, wherein said ignition module is mounted on the distributor.

3. An ignition system according to claim **1** wherein the microprocessor is operative for reducing the duty cycle from about 5% to about 15%.

4. An ignition system according to claim **1** wherein the temperature sensing circuit comprises a temperature sensing resistor and reference diode for establishing a temperature control signal to the microprocessor that is linear with temperature change in the ignition module.

5. An ignition system according to claim **1** wherein the ignition module further comprises a circuit for reducing vehicle voltage that is about 14 to about 15 volts to about 5 volts for supplying power to the microprocessor.

6. An ignition system according to claim **1** wherein the ignition module further comprises a signal input for receiving a profile ignition pickup (PIP) signal from the Hall Effect stator assembly.

7. An ignition system according to claim **6** wherein the microprocessor is operative for comparing the spark output (SPOUT) signal with the profile ignition pickup (PIP) signal to determine a timing interval for switching ON and OFF the primary current within the ignition coil.

8. An ignition system according to claim **6** wherein the microprocessor within the ignition module is operative for determining when an engine threshold has been exceeded by processing engine operating parameters as determined by at least the spark output (SPOUT) signals and/or profile ignition pickup (PIP) signals generated to the ignition module.

9. An ignition system according to claim **1** wherein the microprocessor within the ignition module is operative for reducing the duty cycle after the temperature threshold has been exceeded and when the engine RPM of the vehicle has dropped below a predetermined number.

10. A distributor for a vehicle comprising:

a distributor base having a Hall Effect stator assembly mounted therein and operative for generating a profile ignition pickup (PIP) signal indicative of crankshaft position and engine RPM to an electronic control assembly (ECA) used on the vehicle; and

an ignition module that receives a spark output (SPOUT) signal from an electronic control assembly (ECA) used on the vehicle, said ignition module including a microprocessor for generating a control signal to an ignition coil and switching ON and OFF the primary current therein, and a temperature sensing circuit operative with the microprocessor for reducing the duty cycle as applied to the control signal from the ignition module to the ignition coil for reducing the generated heat by the TFI module when a temperature threshold for the ignition module has been exceeded.

11. A distributor according to claim **10** and further comprising an armature and shaft assembly mounted within the distributor base, wherein said ignition module is mounted on the distributor base.

12. A distributor according to claim **10** wherein the microprocessor is operative for reducing the duty cycle from about 5% to about 15%.

13. A distributor according to claim **10** wherein the temperature sensing circuit comprises a temperature sensing resistor and reference diode for establishing a temperature control signal to the microprocessor that is linear with temperature change in the ignition module.

14. A distributor according to claim **10** wherein the ignition module further comprises a circuit for reducing vehicle voltage that is about 14 to about 15 volts to about 5 volts for supplying power to the microprocessor.

15. A distributor according to claim **10** wherein the ignition module further comprises a signal input for receiving a profile ignition pickup (PIP) signal from the Hall Effect stator assembly.

16. A distributor according to claim **15** wherein the microprocessor is operative for comparing the spark output (SPOUT) signal with the profile ignition pickup (PIP) signal within the ignition module to determine a timing interval for switching ON and OFF the primary current within the ignition coil.

17. A distributor according to claim **16** wherein the microprocessor within the ignition module is operative for determining when an engine threshold has been exceeded by processing engine operating parameters as determined by at least the spark output

(SPOUT) signals and/or profile ignition pickup (PIP) signals generated to the ignition module.

18. A distributor according to claim **10** wherein the microprocessor within the ignition module is operative for reducing the duty cycle after the temperature threshold has been exceeded and when the engine RPM of the vehicle has dropped below a predetermined number.

19. An ignition module used for a vehicle ignition system comprising:

a housing adapted for mounting on a distributor;

a thick film substrate contained within the housing;

a microprocessor mounted on the thick film substrate and operative for receiving at least a spark output (SPOUT) signal from an electronic control assembly (ECA) used on the vehicle and generating a control signal to an ignition coil and switching ON and OFF the primary current therein; and

a temperature sensing circuit operative with the microprocessor such that the microprocessor reduces the duty cycle as applied to the control signal generated to the ignition coil and reduces the generated heat when a temperature threshold for the ignition module has been exceeded.

20. An ignition module according to claim **19** wherein the microprocessor is operative for reducing the duty cycle from about 5% to about 15%.

21. An ignition module according to claim **19** wherein the temperature sensing circuit comprises a temperature sensing resistor and reference diode for establishing a temperature control signal to the microprocessor that is linear with temperature change in the ignition module.

22. An ignition module according to claim **19** and further comprising a circuit for reducing vehicle voltage of that is 14 to about 15 volts to about 5 volts for supplying power to the microprocessor.

23. An ignition module according to claim **19** and further comprising a signal input for receiving a profile ignition pickup (PIP) signal from the Hall Effect stator assembly.

24. An ignition module according to claim **23** wherein the microprocessor is operative for comparing the spark output (SPOUT) signal with the profile ignition pickup (PIP) signal within the TFI module to determine a timing interval for switching ON and OFF the primary current within the ignition coil.

25. An ignition module according to claim **23** wherein the microprocessor is operative for determining when an engine threshold has been exceeded by processing engine operating parameters as determined by at least the spark output (SPOUT) and/or profile ignition pickup (PIP) signals generated to the ignition module.

26. An ignition module according to claim **19** wherein the microprocessor is operative for reducing the duty cycle after the temperature threshold has been exceeded and when the engine RPM of the vehicle has dropped below a predetermined number.

27. A method of operating an ignition system of a vehicle having an electronic engine control (EEC) comprising the steps of:

monitoring the temperature in an ignition module mounted on a distributor having a Hall Effect stator assembly that generates a profile ignition pickup (PIP) signal indicative of crankshaft position and engine RPM to the electronic control assembly (ECA), which produces a spark output (SPOUT) signal to the ignition module, wherein the ignition module includes a microprocessor for generating a control signal to the ignition coil and switching ON and OFF the primary current therein; and

reducing the duty cycle as applied to the control signal from the ignition module to the ignition coil and reducing the heat generated by the ignition module when a temperature threshold for the ignition TFI module has been exceeded.

28. A method according to claim **27** and further comprising the step of reducing the duty cycle from about 5% to about 15%.

29. A method according to claim **27** and further comprising the step of transmitting the profile ignition pickup (PIP) signal to the ignition module.

30. A method according to claim **29** and further comprising the step of comparing the spark output (SPOUT) signal with the profile ignition pickup (PIP) signal within the ignition module to determine a timing interval for switching ON and OFF the primary current within the ignition coil.

31. A method according to claim **29** and further comprising the step of determining when the temperature threshold has been exceeded by processing engine operating parameters as determined by at least the spark output (SPOUT) and/or profile ignition pickup (PIP) signals generated to the ignition module.

32. A method according to claim **27** and further comprising the step of reducing the duty cycle after the temperature threshold has been exceeded and when the engine RPM of the vehicle has dropped below a predetermined number.

33. A method according to claim **27** and further comprising the step of sensing temperature within the ignition module for determining when the temperature threshold for the ignition module has been exceeded.

34. A method according to claim **27** and further comprising the step of sensing current within a temperature sensing circuit for determining when if the temperature threshold has been exceeded.

35. A method according to claim **34** wherein the temperature sensing circuit comprises a temperature sensing resistor.

36. A method according to claim **35** and further comprising the step of rectifying a signal that passes through the temperature sensing resistor using a reference diode for establishing a temperature control signal to the microprocessor that is linear with temperature change in the ignition module.

37. A method of operating an ignition system of a vehicle having an electronic engine control (EEC) comprising the steps of:

monitoring the temperature of an ignition module that receives a spark output (SPOUT) signal from an electronic control assembly (ECA) and generates a control signal to an ignition coil for switching ON and OFF the primary current therein; and

reducing the duty cycle as applied to the control signal from the ignition module to the ignition coil and reducing the heat generated by the ignition module when a temperature threshold for the ignition module has been exceeded.

38. A method according to claim **37** and further comprising the step of generating the control signal from a microprocessor positioned within the ignition module.

39. A method according to claim **37** and further comprising the step of generating a profile ignition pickup (PIP) signal indicative of a crankshaft position and engine RPM to the electronic control assembly (ECA).

40. A method according to claim **37** and further comprising the step of mounting the ignition module on a distributor of the vehicle.

41. A method according to claim **37** and further comprising the step of reducing the duty cycle from about 5% to about 15%.

42. A method according to claim **37** and further comprising the step of transmitting a profile ignition pickup (PIP) signal to the ignition module.

43. A method according to claim **37** and further comprising the step of comparing the spark output (SPOUT) signal with a profile ignition pickup (PIP) signal within the ignition module to determine a timing interval for switching ON and OFF the primary current within the ignition coil.

44. A method according to claim **37** and further comprising the step of sensing temperature within the ignition module for determining when the temperature threshold for the ignition module has been exceeded.

45. A method according to claim **37** and further comprising the step of sensing current within a temperature sensing circuit for determining when the temperature threshold has been exceeded.

46. A method according to claim **45** wherein the temperature sensing circuit comprises a temperature sensing resistor.

47. A method according to claim **46** and further comprising the step of rectifying a signal that passes through the temperature sensing resistor using a reference diode for establishing a temperature control signal to the microprocessor that is linear with temperature change in the ignition module.